

Remarks

The above Amendments and these Remarks are in reply to the Office Action mailed April 7, 2006. Claims 1-29, 34, and 39-41 were pending in the Application prior to the outstanding Office Action. In the Office Action, the Examiner rejected claims 1-29 and 34. The present Response amends claims 1, 5, 8, 16, 22, 27-29, 34, and 39-41, leaving for the Examiner's present consideration claims 1-29, 34, and 39-41. Reconsideration of the rejections is respectfully requested.

I. Specification

Paragraph [0005] has been amended to include the application data for the patent application referenced in the paragraph. No new matter has been added.

II. Status of Claims

The Applicant would like to point out that claims 39-41 are not withdrawn as indicated on the Office Action Summary, per responses filed on Feb. 11, 2005 and Dec. 27, 2005. The Applicant respectfully leaves these claims for the Examiner's present consideration.

III. Double Patenting

Claims 1-29 and 34 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the claims of U.S. Patent No. 6,660,177. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are claiming the same subject matter in a different wording variation.

A Terminal Disclaimer in compliance with 37 CFR 1.321(c) is filed herewith to overcome the rejection over claims 1-29 and 34 on the ground of nonstatutory obviousness-type double patenting over the claims of U.S. Patent No. 6,660,177. Accordingly, Applicant respectfully requests that the rejection with respect to these claims be withdrawn.

IV. Claim Objections

1. Claim 22 is objected to because "... producing a volatile reaction on the surface..." should read "... producing a volatile reaction product on the surface..."

Claim 22 has been amended as the Examiner suggested.

2. Applicant is advised that should claim 28 be found allowable, claim 29 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof.

Claim 29 has been amended to remove the duplicate portion with claim 28.

V. Rejections under 35 USC § 102

1. Claims 1-7, 9-14, 18, 20, 22-26, 28, 29 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Takino, *et al.* in Computer Numerically Controlled Plasma Chemical Vaporization Machining with a Pipe Electrode for Optical Fabrication, Applied Optics Vol. 37, No. 22, pages 5198-5210.

Takino teaches a plasma Chemical Vapor Machining (CVM) device, which uses an electrode and suffers from several drawbacks inherent to the method as detailed in [0020]-[0021] of the current application, namely limits on process rate, removal rate and fines-scale material removal, and difficulty in modeling and control. In contrast, the present invention utilizes an ICP torch that is highly-controllable and precise, and it does not require electrodes ([0043]). Therefore, Takino cannot anticipate the present invention in claim 1 and 34. Since claims 2-7, 9-14, 18, 20, 22-26, 28, and 29 depend on claim 1, Takino cannot anticipate claims 1-7, 9-14, 18, 20, 22-26, 28, 29 and 34, and Applicant respectfully requests that the rejection with respect to these claims be withdrawn.

2. Claims 1-3, 5-9, 12, 14, 20, 22, 25, 29 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Zarowin, *et al.* in Rapid Non-contact, Damage Free Shaping of Optical & Other surfaces with Plasma Assisted Chemical Etching, 43rd Annual Symposium on Frequency Control, 1989, pages 623-626 (hereinafter Zarowin).

Figure 1 (a) of Zarowin shows two operating modes of PACE, both utilizes a square-shaped electrodes as a container instead of a plasma torch. Fundamentally, the PACE method as discussed in Zarowin utilizes capacitively-coupled plasma discharge, which limits the workpiece to be either

conductive or less than 10 mm thick. In contrast, the present invention utilizes an inductive-coupled plasma torch, which does not have such limitations. Therefore, Zarowin cannot anticipate independent claims 1 and 34. Since claims 2-3, 5-9, 12, 14, 20, 22, 25, and 29 depend on claim 1, Zarowin cannot anticipate claims 1-3, 5-9, 12, 14, 20, 22, 25, 29 and 34, and Applicant respectfully requests that the rejection with respect to these claims be withdrawn.

VI. Rejection under 35 U.S.C. § 103

1. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takino as applied to claim 1 above.

As discussed above, Takino cannot anticipate the present invention in claim 1. Since claim 8 depends on claim 1, Takino cannot anticipate claims 8, and Applicant respectfully requests that the rejection with respect to the claim be withdrawn.

2. Claims 15-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takino as applied to claim 1 above and further in view of U.S. Patent No. 6,218,640 issued to Selitser.

Selitser teaches a Linear Plasma Torch (col. 4, lines 43-44), which creates a "large area plasma source" (col. 1, lines 46-47) that treats the entire surface of a workpiece. It cannot change the shape of the surface, however, because it etches everywhere equally. In contrast, the ICP torch taught in the present invention produces a "sub-aperture" plasma that can change the shape of the workpiece by differentially etching some areas more than others. Thus, the full aperture plasma treatment torch in Selitser cannot anticipate the ICP torch for "sub-aperture" plasma treatment in claim 1. As previously discussed, Takino cannot anticipate the ICP torch in claim 1 either. So neither Takino nor Selitser can anticipate the ICP torch in claim 1. Since claims 15-17 and 19 depend on claim 1, they cannot be rendered obvious under 35 U.S.C. § 103(a), and Applicant respectfully requests that the rejection with respect to these claims be withdrawn.

3. Claims 17, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takino

as applied to claim 1 above and further in view of U.S. Patent No. 4,674,683 issued to Fabel.

Fabel teaches a plasma flames gun with adjustable ratio of radial and tangential plasma gas flow. It does not intend to shape a surface of a workpiece nor utilize a plasma torch, so it cannot anticipate the ICP torch in claim 1. As previously discussed, Takino cannot anticipate the ICP torch in claim 1 either. So neither Takino nor Fabel can anticipate the ICP torch in claim 1. Since claims 17, 19 and 21 depend on claim 1, they cannot be rendered obvious under 35 U.S.C. § 103(a), and Applicant respectfully requests that the rejection with respect to these claims be withdrawn.

4. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takino as applied to claim 1 above and further in view of U.S. Patent No. 6,105,534 issued to Siniaguine et al.

Siniaguine teaches treatment of substrates placed on two carrousels using a plasma jet. It does not intend to shape a surface of a workpiece nor utilize a plasma torch, so it cannot anticipate the ICP torch in claim 1. As previously discussed, Takino cannot anticipate the ICP torch in claim 1 either. So neither Takino nor Fabel can anticipate the ICP torch in claim 1. Since claim 27 depends on claim 1, it cannot be rendered obvious under 35 U.S.C. § 103(a), and Applicant respectfully request that the rejection with respect to claim 27 be withdrawn.

5. Claims 19 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zarowin as applied to claim 1 above and further in view of U.S. Patent 5,961,772 issued to Selwyn.

Selwyn teaches an atmospheric-pressure plasma jet that can be operated near room temperature. "Unlike plasma torches" (Abstract), it shows distinct non-thermal characteristics. Since it does not utilize either a plasma torch nor intend to shape a surface of a workpiece, it cannot anticipate the ICP torch in claim 1. As previously discussed, Zarowin cannot anticipate the ICP torch in claim 1, so neither Zarowin nor Selwyn can anticipate the ICP torch in claim 1. Since claims 19 and 24 depend on claim 1, they cannot be rendered obvious under 35 U.S.C. § 103(a), and Applicant respectfully requests that the rejection with respect to claims 19 and 24 be withdrawn.

6. Claims 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zarowin as applied to claim 1 above and further in view of U.S. Patent 4,674,683 issued to Fabel.

As previously discussed, neither Zarowin nor Fabel can anticipate the ICP torch in claim 1. Since claims 19 and 21 depend on claim 1, they cannot be rendered obvious under 35 U.S.C. § 103(a), and Applicant respectfully requests that the rejection with respect to these claims be withdrawn.

7. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zarowin as applied to claim 1 above and further in view of U.S. Patent No. 6,105,534 issued to Siniaguine et al.

As previously discussed, neither Zarowin nor Siniaguine can anticipate the ICP torch in claim 1. Since claim 27 depends on claim 1, claim 27 cannot be rendered obvious under 35 U.S.C. § 103(a), and Applicant respectfully requests that the rejection with respect to claim 27 be withdrawn.

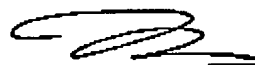
VII. Conclusion

In light of the above, it is respectfully submitted that all of the claims now pending in the subject patent application should be allowable, and a Notice of Allowance is requested. The Examiner is respectfully requested to telephone the undersigned if he can assist in any way in expediting issuance of a patent.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: 10/10/06

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